

CLINICAL IMAGES

Percutaneous liver biopsy: a cause of hepatic portal venous gas

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A 72-year-old man who was a known carrier of hepatitis B underwent computed tomographic (CT)-guided biopsy of a mass in the liver, which had been detected during routine surveillance. Needle biopsy was performed using a coaxial technique with an 18-gauge Quick-Core biopsy needle set (Cook Medical) (Figure 1A). A CT scan taken immediately after the procedure showed a linear streak of gas at the site of the biopsy. Several gas-filled branching structures that extended to the periphery of the liver were seen, consistent with portal venous gas (Figure 1B, C). As the patient was asymptomatic, treatment was managed conservatively. The patient was discharged in the evening and was well on follow-up three weeks after the procedure.

Portal venous gas has historically been considered a rare condition associated with mesenteric ischemia and bowel necrosis, with a potentially fatal outcome. Indeed, timely clinical evaluation remains crucial in the appropriate setting.¹ Nevertheless, it is now known that portal venous gas is not a disease but rather a manifestation with myriad causes. In recent years, benign etiologies have been increasingly recognized, in part because of the rise in use of imaging techniques such as ultrasonography and CT, leading to its increased detection. Among the roster of benign causes, iatrogenic causes are well described. These include lumbar puncture,² double-contrast barium enema,³ colonoscopy,⁴ endoscopic sphincterotomy⁵

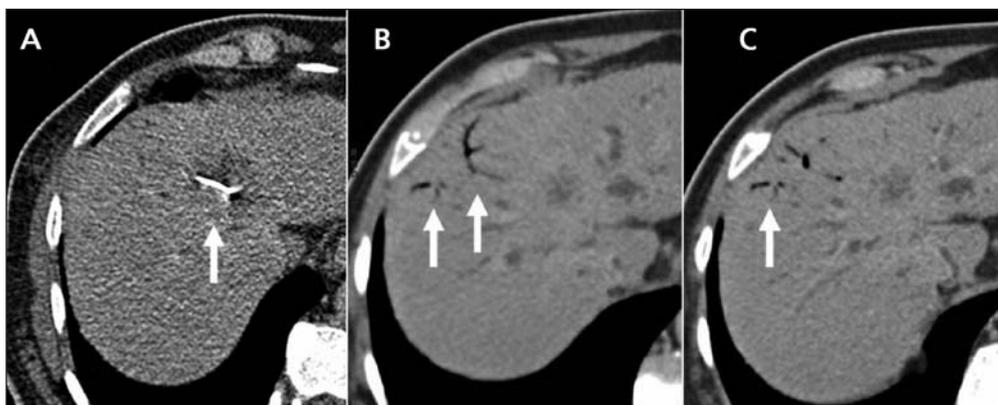


Figure 1: (A) Computed tomographic image of a 72-year-old man showing the position of the biopsy needle within the hypodense liver mass (arrow) during a liver biopsy. (B, C) Computed tomographic images taken after the procedure showing linear, branching gas-filled structures (arrows) that extend to the subcapsular region of the liver, consistent with portal venous gas.

and radiofrequency ablation.⁶ In our patient, transgression of the portal vein with entry of ambient air during biopsy was the likely cause of portal venous gas. Notably, a common feature among the iatrogenic associations of portal venous gas is the benign clinical course. Therefore, portal venous gas can be managed expectantly when it is incidentally detected in an otherwise asymptomatic patient who has undergone a procedure.

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REFERENCES

- Schindera ST, Triller J, Vock P, et al. Detection of hepatic portal venous gas: its clinical impact and outcome. *Emerg Radiol* 2006;12:164-70.
- Karaosmano lu D, Oktar SO, Araç M, et al. Case report: Portal and systemic venous gas in a patient after lumbar puncture. *Br J Radiol* 2005;78:767-9.
- Bull MJ, Kaye B. Portal vein gas following double-contrast barium enema. *Br J Radiol* 1985;58:1129-30.
- Salyers WJ Jr, Mansour A. Portal venous gas following colonoscopy and small bowel follow-through in a patient with Crohn's disease. *Endoscopy* 2007;39(Suppl 1):E130.
- Simmons TC. Hepatic portal venous gas due to endoscopic sphincterotomy. *Am J Gastroenterol* 1988;83:326-8.
- Oei T, vanSonnenberg E, Shankar S, et al. Radiofrequency ablation of liver tumors: a new cause of benign portal venous gas. *Radiology* 2005;237:709-17.

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